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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: Maa, Shalong

Application No.: 08/833,342

Art Unit: 3713

Filing Date: April 4, 1997

For: Computer-Controlled Talking Figure Toy with Animated Features

Assistant Commissioner for Patents
(Box - Patent Appeal)
Washington, D.C. 20231

Dear Sir:

BRIEF IN SUPPORT OF APPEAL TO BOARD OF PATENT APPEALS AND
INTERFERENCES (37 C.F.R. § 1.191, 1.192)

In re ex parte prosecution of the above-identified application, Applicant respectfully appeal from the decision of the Examiner to the Board of Patent Appeals and Interference.

I. REAL PARTY IN INTEREST

The pro se Applicant /owner is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interference known to Applicant that will directly affect or be directly affected by or have a bearing on the Board's decision in the present appeal.

III. STATUS OF CLAIMS

Applicant originally presented Claims 1-34 for consideration. Claims 29-34 were canceled as a result of provisional election. After filing the Continued Prosecution Application (CPA), a substitute specification, including Claims 35-60 in replacement of the original Claims, were submitted on 07/04/99 via facsimile and were entered as Paper No.13 and dated as 07/02/99 (Office Action dated 08/02/99, see also 2nd paragraph / Page 7 of the Office Action dated 05/15/00). Claims 1-28 were therefore canceled during the proceeding. Claims 35-60 stand rejected. Accordingly, Applicant appeals from rejections of Claims 35-60 to the Board.

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IV. STATUS OF AMENDMENTS

Amendments of Claims 37, 40, 42, 44, and 47 for presenting the claims in better form for appeal, submitted on 06/06/00, have been entered, as stated in the Advisory Action dated 06/30/00.

V. SUMMARY OF THE INVENTION

The appealed Claims 35-60 define the entire invention of the present application, as depicted in details with respect to each independent Claim and those depending therefrom as follows:

- (5.1) Claims 35, 37 and 44-45 are drawn to an animated talking toy figure (1), having a body portion with at least one movable portion, such as its mouth (12), and an audio output device (44) adapted to reproduce sound received from a multimedia system such as a multimedia computer (30). The actuation of the toy figure's movable body portion is controlled by a separate digital animation-control signal sequence received from the computer. As depicted at the preamble of Claim 35, the improvement of the invention, as compared with prior art animated talking toys, includes the toy figure's actuation means being feasible for digital control. The actuation means includes at least one two-phase actuator (40, 38, and/or 42), such as a solenoid (56), for driving the movable portion of the toy figure, and an electronic actuation-control means (36, 82) for controlling the actuator in response to receiving digital control signals from the computer. Claim 50 provides further limitation to Claim 44 by including in the toy figure's body a microphone means (46) for converting an external audio sound received by the toy to electrical signals for transmission to the computer. Claim 51 is drawn to a combination of the toy figure (1) and the multimedia computer (30). Claim 56, 58 and 59 provide further limitations to Claim 51 by including in the combination a microphone means (46), an image-displaying means (30c), and an elongated cable (34) respectively. (Reference to Specification: 4:17-7:2, i.e., page4 / line17 to page7 / line2, FIGS. 1-2)
- (5.2) Claims 36, 38-42, 47 and 52 are drawn to the structures and arrangement of the toy figure's two-phase actuation mechanism and the embodiment of the toy figure's actuation control, and depend from and provide such limitations to Claims 35, 37, 44 and 51 respectively. The toy figure's actuation-control means includes a logic switch means (82) for selectively switching electric current to the wiring coil (66) of the solenoid actuator (56) according to the digital animation-control signals received from the computer (30). Since there is direct correspondence between the two phases of the solenoid actuator employed and the "open" / "close" positions of the toy figure's movable body part, coupling between the two-phase actuator and the toy figure's movable body part does not require any rotary gearing system. (Reference to Specification: 7:3-10:20, FIGS 3-4)

- (5.3) The claimed invention also provides apparatus and methods of synchronizing the toy figure (1)'s animation with its audio sound. Since the binary codes "1" and "0" can be directly associated with the two phases of the solenoid actuator and the "open" / "close" positions of the toy figure's movable body part, simple digital animation-control signal sequence can be created according to the speed of the audio sound, reaction-response time of the actuator, and detailed textual content, such as arrangement of vowel letters, of the toy figure's audio speech, utilizing the multimedia computer (30). This aspect of the invention is defined in general in independent Claims 44 and 51, in Claims 48-49 as further limitations to Claim 44, and in Claims 53 and 54-55 as further limitations to Claim 51. (Reference to Specification: 10:21-17:23, FIGS. 5-7). Additionally, Claims 56-57 provide further limitations to Claim 51 with respect to operation of the sound subsystem (116) of the multimedia computer (30) in response to the microphone mean (46) of the toy figure (1) receiving external audio sound. (Reference to Specification: 15:14-28)
- (5.4) An important advantage of the present invention, as compared with prior art animated talking toys, is precise digital control of the toy figure (1)'s each movable body portion according to its audio sound, including separate control of actuation of the toy figure's two different movable body portions, such as movement of its arms being independent of that of its mouth, so as to provide realistic animation effects, as so set forth in Claims 43, 46 and 60 as further limitations to Claim 37, 44 and 51 respectively. (Reference to Specification: 12:9-15, 13:17-14:14, and 18:30-19:1)

VI. ISSUES

- (6.1) Applying authorities such as MPEP and prior case law as basis for interpretation of statutes and as source of supporting rationale - Errors in Rejections;
- (6.2) Answer all material traversed by Applicant - Errors in Rejections and in rationale in support thereof;
- (6.3) Rejections of Claims 35, 37 and 43 under 35 U.S.C. § 102(b) as being anticipated by TONG (Patent Number: 5,636,994, Date of Patent: 06/10/97);
- (6.4) Rejections of Claims 35, 37 and 43 under 35 U.S.C. § 102(e) as being anticipated by TONG;
- (6.5) Rejections under 35 U.S.C. § 103(a) of Claims 36 and 38-42 as being unpatentable over TONG, and Claims 44-60 as being unpatentable over TONG in view of GASPER ET AL (Patent Number 5,111,409, Date of Patent: 05/05/92).

VII. GROUPING OF CLAIMS

- (7.1) Claims 35, 37 and 43 are rejected under 35 U.S.C. §102(e) [102(b)] as being anticipated by TONG. Applicant considers that the three Claims do not stand and fall together and believes that they are separately patentable, as supported by the ARGUMENT Section hereinbelow.
- (7.2) Claims 36 and 38-42 are rejected under 35 U.S.C. §103(a) as being unpatentable over TONG. Applicant considers that Claims 36 and 38-39 stand and fall together, and Claims 40-41 stand and fall together, and believes that the three groups of Claims, i.e., (1) Claims 36 and 38-39, (2) Claims 40-41, and (3) Claim 42, as amended, are separately patentable, as supported by the ARGUMENT Section hereinbelow.
- (7.3) Claims 44-60 are rejected under 35 U.S.C. §103(a) as being unpatentable over TONG in view of GASPER ET AL. Applicant considers that Claims 44-50 stand and fall together, and Claims 51-60 stand and fall together, and believes that the two groups of Claims, i.e., (1) Claims 44-50 and (2) Claims 51-60, as amended, are separately patentable, as supported by the ARGUMENT Section hereinbelow.

VIII. ARGUMENT

The discussions and requests in first two segments of this section are with regard to general rules of practice in prosecution of the application and deficiencies in the previous Office Actions. Applicant believes that these requests comply with Office rules, practice, and procedure and respectfully requests the Board to consider. Detailed discussions of errors in rejection of each Claim are provided thereafter.

(VIII.1) INTERPRETATION OF STATUTES -

(Errors in Rejections)

- (1A) Applicant acknowledges that majority of the arguments in the Office Actions dated 08/02/99 and 05/15/00 in support of the obviousness Rejections therein are mere statement of Examiner's personal opinion with respect to obviousness of employing a specific actuation device, i.e., solenoid, in the claimed invention, "*to one of ordinary skill in the art at the time the invention was made*", without source of supporting rationale, such as applying prior case law or citation of authorities, as basis for interpretation of the statutes applied in the Rejections. The 05/15/00 Office Action also fails to provide any discussion of Applicant's citations of authorities.
- (1B) In regarding applying authorities such as MPEP and prior case law in interpretation of the statutes

and lack thereof in the 08/02/99 Office Action, Applicant's Response of 10/27/99 states on page 9 (subsection 14.1-2) that "Applicant has provided Legal Precedent in support [of] the arguments herein, and respectfully request that Examiner do the same should he/she is [be] opposed to any of said arguments." and " 'The value of the exceedingly large body of precedent wherein our predecessor courts and this court have applied the law of obviousness to particular facts, is that there has been built a wide spectrum of illustrations and accompanying reasoning, that have been melded into a fairly consistent application of law to a great variety of facts.' In re Eli Lilly & Co., 902 F.d. 943, 14 USPQ2d 1741 (Fed. Cir. 1990)" (See also MPEP§ 2144)

- (1C) Apparently, the next Office Action of 05/15/00 fails to respond to these requests. Applicant again does not find any suitable citation or discussion of MPEP, legal precedent or other authorities as basis for interpretation of the statutes applied in the Rejections in response to Applicant's argument, and there is no discussion as to why Applicant's citations of authorities do not provide sufficient support of Applicant's Traverse, although all Claims have been rejected. Section 23 (page 15-16) of the 05/15/00 Office Action does refer to "*In re Fine*" and "*In re Jones*", however the court decisions in both two cases are apparently against the obviousness rejections. (See subsection 8.5-A4b below and MPEP§ 2143.01)
- (1D) Therefore, Applicant hereby respectfully repeats the request of subsection (1A) hereinabove that, in case of any repeat rejection in response to the Appeal, the ensuing Examiner's Answer or Action provide suitable citation or discussion of MPEP, legal precedent or other authorities in answering Applicant's each point of argument, and include discussion as to why Applicant's citation of authorities or reference to prior case law or rationale used by the court do not provide sufficient support of Applicant's Traverse. Applicant believes that such a request comply with Office rules, practice, and procedure. In re Eli Lilly & Co., 902 F.d. 943, 14 USPQ2d 1741 (Fed. Cir. 1990) (See also MPEP§ 2144)

(VIII.2) ANSWER ALL MATERIAL TRAVERSED -
(Errors in Rejections and in Rationale in Support Thereof)

- (2A1) With regard to lack of response to Applicant's arguments in Office Action dated 08/02/99, Applicant's Response of 10/27/99 states on page 5 (subsection 5.2), in accordance with 37 C.F.R. § 1.104 and MPEP § 707.07, that "Examiner has[ve] ignored and is unresponsive to almost all points of arguments in the REMARKS [Applicant's previous communication filed 07/04/99] ... Applicant respectfully requests, and insists, that Examiner explicitly addresses (either agree or point out the exact portion that he/she is opposed to), in the ensuing Office Action, each and every point of argument herein and in the REMARKS", and repeats such request on page 9 (under subsection 13.2) of the same

communication. Applicant also states therein that lack of response to Applicant's any argument will be construed as said argument being agreed upon. (page 9, under subsection 13.3, with correction of typographical errors)

- (2A2) In response thereto, Office Action of 05/15/00 states in the first paragraph of page 11 that *"Examiner's 'lack of response' cannot be presumed to 'render his/her agreement hereupon'. It is more likely that Examiner's 'lack of response' on a particular point or argument raised by Applicant is because the particular point or argument is redundant and has already been addressed"*, and repeats such statement in section 17 on page 12.
- (2B) However, it is clear to Applicant that Office Actions of 08/02/99 and 05/15/00 do not address Applicant's many important points of argument which, Applicant believes, are relevant to interpretation of the statutes applied in the Rejections, as described in the next two subsections, and that in several occasions, the statement in the 05/15/00 Office Action clearly indicates its ignorance of Applicant's arguments, as described in the ensuing subsections (2D) of this section.
- (2C1) In regarding structural and functional differences between the present invention and prior art references, Office Actions of 05/15/00 states in section 18 (page 12-13), in response to Applicant's previous argument filed 10/27/99, that *"Applicant's argument fail to comply with 37CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references"*, and repeats such statement twice in section 19 (page 13) and section 20 (page 14).
- (2C2) On the contrary, the REMARKS portion of Applicant's Response submitted 07/04/99 does specifically point out how the claim languages patentably distinguishes them from the references (e.g., in section 4, subsections 5.2-3, subsections 5.4-6, and at end of section 7 of the REMARKS). These arguments are clearly referred to on page 5 (subsection 5.1) of Applicant's Response filed 10/27/99, and there is no response to these discussions in any of the two Office Actions.
- (2C3) Thus, Applicant respectfully represents that it is difficult to understand the rationale of the Rejections and the comments of *"...without specifically pointing out how the language of the claims patentably distinguishes them from the references"* and Applicant's argument being *"redundant and has already been addressed"* in the Office Action.
- (2D1) With respect to the alleged modification of TONG being functionally unfeasible, Applicant's communication of 10/27/99 states in section (7) on page 6 that it is "because the electronic driving system provided therein [in TONG] can not be used to control a solenoid, which is obvious to one having ordinary skill in the art", and refers to sections 8-9 of the REMARKS portion of Applicant's communication filed 07/04/99 which also provides technical arguments regarding the alleged modification of TONG being functionally unfeasible.

- (2D2) In response thereto, the Office Action of 05/15/00 states, on page 14 (section 20), that "... *since Applicant has not given any reason why such a modification is not feasible, the argument amounts to a general allegation*"
- (2D3) Thus, again, Applicant respectfully represents that it is difficult to understand the rationale of the Rejections, and respectfully repeats the request of subsection (2A1) hereinabove that, in case of repeat rejections in response to this Appeal, the ensuing Examiner's Answer or Action provide precise and full response to Applicant's each point of argument provided herein. Applicant believes that such a request comply with Office rules, practice, and procedure.
- (2E1) The 05/15/00 Office Action states, on page 10 (under section 14), that "*where an explanation or argument is being maintained from one Office Action to the next, it is appropriate to 'cut and paste' from the first to the second action in order to avoid unnecessary or confusing changes in wording ...*"
- (2E2) However, Applicant acknowledges that the 05/15/00 Office Action includes a new statutory basis as ground of rejecting claims, i.e., anticipation Rejections under 35 U.S.C. § 102(e), and the entire arguments in support thereof (section 4 / page 3) is "*cut and paste*" from Section 4 (page 3-4) of the Office Action dated 11/10/98, which were provided in support of Rejections under a different statutory basis, i.e., obviousness Rejections under 35 U.S.C. § 103(a).

(VIII.3) REJECTIONS UNDER 35 U.S.C. § 102(b)

Applicant respectfully traverses and appeals to the Board from Rejections of Claims 35, 37 and 43 as "*being anticipated by TONG*" under 35 U.S.C. § 102(b) [Office Action dated 08/02/99].

(8.3A) Errors in the Rejections:

- (A1) The 08/02/99 Office Action states on page 4 (sections 8-9) that "*The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejection under this section made in this Office action: A person shall be entitled to a patent unless -- (b) the invention was patented or ...*" and "*Claims 35, 37, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by TONG*".
- (A2) Applicant's Response submitted 10/27/99 points out the incorrectness of such ground of rejection (see the following subsection 8.3B). In response thereto, the 05/15/00 Office Action states on page 9 (section 13) that "*However, the filing date of TONG predates the filing date of Applicant's Provisional Application. Accordingly, the 102 rejection has been restated properly (..) as a rejection under 35 U.S.C. 102(e)*"
- (A3) Since the Office Action of 05/15/00 restates the rejection as "*rejection under 35 U.S.C. 102(e)*", but does not specifically acknowledge the mistake, the issue is raised herein only for clarification

purposes.

(8.3B) Detailed Argument

As explained in Applicant's Response submitted 10/27/99 (subsection 1.1 / page 2), rejection under 35 U.S.C. § 102(b) requires that the prior art invention be patented "more than one year prior to the date of the application ..." The non-provisional application filing date of the present case is April 4, 1997, which is more than two month *earlier* than the patent date of TONG; and the provisional application filing date is April 05, 1996, which is fourteen month *earlier* than TONG's patent date. Therefore, the Rejections of Claims 35, 37 and 43 under 35 U.S.C. § 102(b) is a mistake.

VIII.4 REJECTIONS UNDER 35 U.S.C. § 102(e)

Applicant respectfully traverses and appeals to the Board from Rejections of Claims 35, 37 and 43 as "*being anticipated by TONG*" under 35 U.S.C. § 102(e).

(8.4A) Errors in the Rejections:

- (A1) With regard to such anticipation Rejections under 35 U.S.C. § 102(e), the Office Action dated 05/15/00 fails to respond to Applicant's arguments and citation of authorities on page 2 [subsection (1.2)] of the communication submitted 10/27/99 traversing the Rejections, and fails to identify several elements set forth in the claims that are not found in TONG, as described in subsection (8.4B) hereinbelow.
- (A2) Applicant respectfully points out, again, that the entire arguments in support of the anticipation Rejections in the 05/15/00 Office Action (section 4 / page 3) are essentially identical to the arguments in Section 4 (page 3-4) of the Office Action dated 11/10/98 which were provided in support of a different statutory rejection therein, i.e., obviousness Rejections under 35 U.S.C. § 103(a).

(8.4B) Detailed Argument:

- (B1) According to MPEP § 2131, " 'A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' Verdegaal Bros. v. Union Oil Co. of California, 814 F.d. 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)", and " 'The identical invention must be shown in as complete detail as is contained in the ... claim.' Richardson v. Suzuki Motor Co., 868 F.d. 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)"
- (B2-i) Applicant believes that claim elements set forth in the following Claim languages are not found

expressly nor inherently described in TONG:

(in claim35) (1) "...IMPROVEMENT THEREIN INCLUDING ACTUATION MEANS SITUATED WITHIN SAID BODY AND OPERABLE BY AN EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL .." and (2) "... SAID ACTUATOR HAVING ONLY TWO PHASES FOR MOVING SAID MOVABLE PORTION IN RESPONSE TO SAID ACTUATION-CONTROL MEANS RECEIVING SAID EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL";

(in claim37) "... ACTUATION MEANS SITUATED WITHIN SAID BODY AND OPERABLE BY THE EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE";

(in claim43) (1) "SAID EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE INCLUDES A SECOND DIGITAL CONTROL SIGNAL SEQUENCE ", and (2) " ..SAID ACTUATION MEANS INCLUDES A FIRST AND A SECOND ACTUATORS FOR CAUSING INDEPENDENT MOVEMENTS OF SAID TWO MOVABLE PORTIONS ". (Note that Claim 43 depends from Claim 37 and, thus, can not be anticipated if Claim 37 is not anticipated)

(B2-ii) Grouping of Claims

As set forth in the claim languages of Subsection (B2-i) above, Claims 35, 37 and 43 are separately patentable. Claim 35 is drawn to the improvement of the present invention as compared with prior art animated talking toy figures, and particularly discloses the embodiment of the digital "ACTUATION MEANS" as including a "TWO PHASES" actuator. Claim elements such as "ACTUATOR HAVING ONLY TWO PHASES" and "ACTUATION MEANS ... OPERABLE BY ... DIGITAL ... SIGNAL" in Claim 35 are not found nor inherently described in TONG. Claim 37 is drawn to a digital-controlled animated talking toy figure with boarder claim languages than Claim 35 with respect to disclosure of the digital-controlled "ACTUATION MEANS". The claim element "ACTUATION MEANS ... OPERABLE BY ... DIGITAL ... SIGNAL " in Claim 37 is not found nor inherently described in TONG. Claim 43 depends from Claim 37 and provides such limitation to Claim 37 as disclosing an additional movable body part of the toy figure that is independent of its first movable body portion, which is not found nor inherently described in TONG either.

(B3) Conclusion: For the foregoing reasons in this section, Applicant believes that the Rejections Under 35 U.S.C. § 102(e) of Claims 35, 37 and 43 fail to comply with the anticipation requirement of MPEP §213 described above, and respectfully requests that Board withdraw the Rejections. (see also the attached Declarations)

VIII.5 REJECTIONS UNDER 35 U.S.C. § 103(a)

Applicant respectfully traverses and appeals to the Board from Rejections, under 35 U.S.C. § 103(a), of Claims 36 and 38-42 as being “*unpatentable over TONG*”, and Claims 44-60 as being unpatentable over TONG in view of GASPER ET AL. For the reasons that follows, the Examiner has failed to establish a *prima facie* case of obviousness of the claimed invention.

(8.5A) Errors in the Rejections

- (A1) It appears that, the key argument applied in support of the obviousness Rejections over TONG is directed to a specific device, the solenoid, employed in the claimed invention, as the argument so stated in the Office Actions as: “*it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect two-phase solenoids as the actuators in the invention of TONG ...*” as such statement being repeated five (5) times in the two Office Actions (in section 5 / page 4, section 20 / page 14, section 22 / page 15, and section 23 / page 16 of the Office Action dated 05/15/00; and in section 11 / page 6 of the Office Action dated 08/02/99); and that, the key argument applied in support of the obviousness Rejections over TONG in view of GASPER ET AL is, “*it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of sound analysis used in GASPER ET AL in the invention of TONG in order to efficiently and accurately analyze and coordinate the inputted user sounds with the movement signals sent to the doll of TONG*”, as such statement being repeated three (3) times in the two Office Actions. (in section 6 / page 5 and section 23 / page 16 of the 05/15/00 Office Action; and in section 12 / page 7 of the 08/02/99 Office Action)
- (A2a) However, the Office Actions fail to consider the subject matter as a whole, the fact that many claim limitations and elements in the claimed invention are not taught or suggested by the prior art, the fact that the alleged modifications and combination are not functional feasible and change the operation principle of the prior art inventions, and lack of success of others, as so discussed in Applicant’s previous Responses and communications.
- (A2b) The following is a list of the argument segments and citations of authorities in Applicant’s Response, submitted 10/27/99, to which the next Office Action dated 05/15/00 fails to provide proper response:
- (a) Discussions of “Non-analogous Art” in subsection (4.2) on page 4;
 - (b) Citation of authority in subsection (4.1) on page 4 in support of the “Non-analogous Art” argument;
 - (c) Citation of authority in subsection (4.3) on page 4 in support of the “Non-analogous Art” argument;
 - (d) Discussions under “Different Structures and Functions” in subsection (5.1) on page 5;

- (e) Citation and discussion of authority in subsection (6.1) on page 5 in support of the argument under "Claim Limitation Not Being Taught or Suggested in Prior Art";
- (f) Discussions of "Proposed Modification Not Feasible[ility]" in subsection (7.1-3) on page 6;
- (g) Citation of authority in subsection (9.1) on page 7 in support of the discussions of "Subject Matter as a Whole";
- (h) Discussions of "Modification needs to be substantial" in subsection (10.1) on page 7;

- (A3a) Applicant's 10/27/99 Response describes five (5) different superior properties and functions of the claimed invention (section 8 / page 6-7) as compared with the prior art inventions, and provides discussions of and references to prior case law in support of Applicant's traverses. In response thereto, the 05/15/00 Office Action states, on page 15 (under section 21), that *"while this two concepts provide evidence of non-obviousness, they are not always sufficient to prove non-obviousness. More importantly, Applicant has not shown any unexpected results, superior properties, or absent properties which would obviate the rejections"*
- (A3b) However, the Office Action fails to state under what circumstances the presence of superior properties and new functions would be *"not .. sufficient to prove non-obviousness"*, and fails to discuss why Applicant's citation of authority does not support Applicant's traverses.
- (A4a) The 05/15/00 Office Action states on page 16 (under section 23), in response to Applicant's previous argument, that *"... Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)."*
- (A4b) Applicant acknowledges that discussions of the court decisions in *In re Fine* and *In re Jones* are also provided in MPEP §2143.01, which states that *"In In re Fine, The examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed."* and *"In In re Jones, The court found there was no suggestion to combine these references to arrive at the claimed invention."*
- (A4c) Thus, it appears that the rationale used by the court are in support of Applicant's traverses instead of Examiner's ground of Rejections.
- (A5a) The Office Actions of 05/15/00 states, in section 5 on page 4, that *"TONG discloses the claimed invention except for the actuator being comprised of a 'solenoid means'"*, and in section 6 on page 4 that *"TONG substantially discloses the claimed invention except for specifically describing the 'digital*

animation-control signal sequence being associated with selected audio speech ... and transmitted to the toy in synchronization with the transmission'."

- (A5b) Applicant respectfully points out that such statement is a showing of incorrect understanding of the reference: TONG does not teach nor suggest using any digital "animation-control" signal or any other type of control signal that is separate from the analog sound signal sent to the doll therein at all; Only analog sound signals are involved in TONG; TONG does not teach nor suggest using any type of two-phase actuator, such as a solenoid or the like, either; Furthermore, the electronic devices employed in TONG (2:51-55, FIGS.1-3, 6) do not facilitate conventional digital control of a solenoid. Thus, TONG's lack of fundamental elements and functionalities disclosed in the claimed invention certainly can not be construed as "*substantially discloses the claimed invention*", and the aforesaid arguments of "... *being associated with ...* " and " ... *in synchronization with ...* " are simply irrelevant to the subject matter of TONG. Further discussions of structural and functional differences between TONG and the claimed invention are provided in "Detailed Argument" Section hereinbelow. (see also the attached Declarations)
- (A6a) The Office Actions of 05/15/00 states on page 5 (section 6) and page 16 (section 23) that "*it would have been obvious .. to use the method of sound analysis used in GASPER ET AL in the invention of TONG in order to efficiently and accurately analyze and coordinate the inputted user sounds with the movement signals sent to the doll of TONG*"
- (A6b) Applicant respectfully points out that such a statement is also a showing of incorrect understanding of the references. The physical structure of TONG's combination of the doll with a computer only facilitates transmission and reception of analog sound signals between the doll and the computer wherein the doll receives and employs the same analog sound signal for controlling all the motors within the doll as well as for supporting its audio output (2:44-55, FIGS.1-2, 6). Thus, its functionally unfeasible to "*use the method of ... GASPER ET AL in the invention of TONG*". Furthermore, as described in the ensuing subsections (A7), the synchronization method and principle of GASPER ET AL is different from the claimed invention. Further discussions of structural and functional differences between TONG / GASPER ET AL and the claimed invention are provided in "Detailed Argument" Section hereinbelow. (see also the attached Declarations)
- (A7a) The Office Actions of 05/15/00 states on page 5 (section 6) that "*GASPER EL AT also teaches different articulations for various sounds: silence, vowels, and consonants.*"
- (A7b) Again, such a statement is a showing of incorrect understanding of the reference. Indeed, the three keywords "SILENCE", "VOWELS" and "CONSONANTS" are shown in GASPER ET AL. However, these words are referred to therein as three "coart types", which is one of the twenty five (25) fields of an "internal data structure" named "synactor model table" [synactor stands for "synthesized actor" representing animated on-screen characters (2:63-65)], to be used in a

"coarticulation process" for dealing with a specific speech pattern named "coarticulatory pattern" by using the "RAVEL" programming language provided therein (18:1-11, 28:1-6, 28:25-30, 28:63-29:1, 16:29-38, FIG.8, Appendix V). These three "coart types" are "pointer to a lookup table [coarticulation type table] used for determining what effect the given phocode [the third field of the "synactor model table" - FIG.8] will have on its neighbor [phocode]" (18:9-11, 29:37-38, 29:49-53, 16:49-59, FIG.8). The purpose of introducing the "coarticulation process" and the three "coart types" in GASPER ET AL is for adjusting the phocode and hence "determining different face (position[s]) to be used" in case of coarticulatory speech pattern (18:1-4, 28:1-3) so as to "make talking synactors always look their best" (30:52-56, FIGS.11a-11d).

(A7c) Thus, the "coarticulation process" and the keywords "SILENCE", "VOWELS" and "CONSONANTS" in GASPER ET AL are completely irrelevant to the general purpose synchronization method of the claimed invention. The only relevant portions of GASPER ET AL., if any, are the methods of creating and using the "phonetic/timing value string" or the "RECITE command string" provided therein (12:52-63, 19:8-15, 19:36-40) which synchronizes an audio sound with the animation of an on-screen image's (or the synactor's) at least eight (8) lip positions and sixteen (16) total facial expressions (9:49-51, 9:68-10:13, 11:64-68, 14:48-56, FIGS. 4, 5c, 6a, 6c). In contrast thereto, the claimed invention synchronizes an audio sound with animation of a physical toy figure's two mouth positions (i.e., "open" and "close"). Further discussions of functional differences between GASPER ET AL and the claimed invention are provided in "Detailed Argument" Section hereinbelow. (see also the attached Declarations)

(A8a) The 05/15/00 Office Action states on page 15 (under section 22), in response to Applicant's previous argument, that "*... while solenoids may be used less in the toy industry now the rejection is not based on the common use of solenoids but on whether it would be obvious or novel to one skilled in the art at the time the invention was made.*"

(A8b) Again, Applicant has difficulties in understanding the rationale. If "*the rejection is not based on the common use of solenoids*" in the industry now, and there is still no product in the market similar to the claimed invention that solves the problem of using digital signals to accurately synchronize a toy's animation with its audio sound (Note: it appears that the Examiner also agrees with Applicant's such argument of Lack of Success of Others. see Section 24 on page 16-17 of the 05/15/00 Office Action), then the argument of "*whether it would be obvious or novel to one skilled in the art*" does not support the obviousness conclusion.

(8.5B) Detailed Argument:

(B1) Claim Limitations Not Being Taught/Suggested in Prior Art

(1a) According to MPEP §2143.03, "To establish prima facie obviousness of a claimed invention, all the

claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). 'All words in a claim must be considered in judging the patentability of that claim against the prior art.' In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)."

(1b-i) Embodiments and/or limitations set forth in the following claim languages are not described nor suggested by TONG and patentably distinguish the claimed invention from TONG:

(in claim36) (1) "... WHEREIN SAID ACTUATOR COMPRISES A SOLENOID MEANS ..", and (2) "SAID ACTUATION-CONTROL MEANS INCLUDES MEANS FOR SELECTIVELY SWITCHING ELECTRIC CURRENT TO SAID WIRING COIL IN RESPONSE TO RECEIVING SAID EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL ...";

(in claim37) "... ACTUATION MEANS SITUATED WITHIN SAID BODY AND OPERABLE BY THE EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE";

(in claim38) "... SAID ACTUATION MEANS INCLUDES ACTUATION-CONTROL MEANS OPERABLE BY SAID EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE AND AN ACTUATOR HAVING ONLY TWO PHASES FOR MOVING SAID MOVABLE PORTION IN RESPONSE TO SAID ACTUATION-CONTROL MEANS RECEIVING THE EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE ...";

(in claim39) (1) "SAID ACTUATOR COMPRISES A SOLENOID MEANS ...", and (2) "WHEREIN SAID ACTUATION-CONTROL MEANS INCLUDES MEANS FOR SELECTIVELY SWITCHING ELECTRIC CURRENT TO SAID WIRING COIL IN RESPONSE TO THE ACTUATION-CONTROL MEANS RECEIVING SAID EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE ...";

(in claim40) "...MEANS FOR COUPLING SAID MOVABLE PORTION OF THE TOY TO SAID PLUNGER MEMBER OF THE SOLENOID";

(in claim42) "... MEANS FOR TRANSFERRING SAID EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE RECEIVED TO A DRIVE-CONTROL SIGNAL SEQUENCE COMPRISING A SEQUENCE OF A FIRST AND A SECOND DRIVE-CONTROL SIGNALS FOR REPRESENTING A FIRST AND A SECOND PREDEFINED BINARY VALUES RESPECTIVELY, AND CONTROL INPUT MEANS FOR RECEIVING SAID DRIVE-CONTROL SIGNAL SEQUENCE".

(1b-ii) Grouping of Claims

As set forth in the claim languages of Subsection (1b-i) above, the three groups of Claims, i.e., (1) Claims 36 and 38-39, (2) Claims 40-41, and (3) Claim 42, as amended, are separately patentable. The first group, i.e., Claims 36 and 38-39 are drawn to a digital-controlled animated talking toy figure with majority of the claim languages disclosing the embodiment of the toy figure's "ACTUATION MEANS" comprising an "ACTUATOR HAVING ONLY TWO PHASES" and an

"ACTUATION-CONTROL MEANS OPERABLE BY ... DIGITAL ... SIGNAL" which are not taught nor suggested by TONG. Claims 40-41 depend from Claim 39, and provide further limitations to Claim 39 with respect to mechanical coupling mechanism between the "ACTUATOR HAVING ONLY TWO PHASES" and the movable portion of the toy figure. Claim 42 depends from Claim 39, and provide further limitations to Claim 39 with respect to the electronic component of the toy figure's digital "ACTUATION-CONTROL MEANS" by disclosing an optional electronic structure for receiving the external digital control signals, which is not taught nor suggested by TONG either.

(1c-i) Embodiments and/or limitations set forth in the following claim languages are not described or suggested by TONG and GASPER ET AL., and patentably distinguish the claimed invention from combination of TONG and GASPER ET AL.

(in claim44) "ACTUATION MEANS ..., INCLUDING AN ACTUATION-CONTROL MEANS OPERABLE BY SAID DIGITAL ANIMATION-CONTROL SIGNALS AND AN ACTUATOR FOR MOVING SAID MOVABLE PORTION IN RESPONSE TO THE ACTUATION-CONTROL MEANS RECEIVING THE DIGITAL ANIMATION-CONTROL SIGNALS";

(in claim45) "SAID DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE REPRESENTS MOVEMENT OF THE MOUTH IN SYNCHRONIZATION WITH TRANSMISSION OF SAID SOUND SIGNAL SEQUENCE ..";

(in claim46) (1) "SAID DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE INCLUDES A SECOND DIGITAL CONTROL SIGNAL SEQUENCE ..."; and (2) "... SAID MOVEMENT OF THE SECOND MOVABLE PORTION BEING INDEPENDENT OF THAT OF THE FIRST MOVABLE PORTION";

(in claim47) (1) "...SAID ACTUATOR COMPRISES A SOLENOID MEANS...", and (2) "... SAID ACTUATION-CONTROL MEANS INCLUDES A [CONTROL] LOGIC INPUT MEANS FOR RECEIVING SAID DIGITAL ANIMATION-CONTROL SIGNALS AND MEANS FOR SELECTIVELY SWITCHING ELECTRIC CURRENT TO SAID WIRING COIL OF THE SOLENOID";

(in claim48) "...ASSOCIATION OF... TEXT OF SAID AUDIO SPEECH WITH ONE OF SAID BINARY DIGITAL VALUES ... ACCORDING TO THE SPEED AND TOTAL TIME OF EACH CONTINUOUS PORTION OF SAID AUDIO SPEECH";

(in claim51) (1) "... AN ANIMATED TALKING TOY OPERABLE BY AN EXTERNAL BINARY DIGITAL ANIMATION-CONTROL SIGNAL .. ", (2) "MULTIMEDIA COMPUTING MEANS FOR GENERATING ... A SEQUENCE OF BINARY DIGITAL ANIMATION-CONTROL SIGNALS FOR TRANSMISSION TO SAID TOY", (3) "...ACTUATION MEANS SITUATED WITHIN SAID BODY AND FEASIBLE FOR DIGITAL CONTROL, INCLUDING AN ACTUATION-CONTROL MEANS OPERABLE BY SAID BINARY DIGITAL ANIMATION-CONTROL SIGNALS AND AN ACTUATOR FOR MOVING THE MOVABLE MOUTH IN RESPONSE TO THE ACTUATION-CONTROL MEANS RECEIVING THE ANIMATION-CONTROL SIGNALS...", and (4) "MEANS FOR CAUSING SYNCHRONOUS TRANSMISSION OF SAID

ANIMATION-CONTROL SIGNAL SEQUENCE TO SAID ACTUATION MEANS AND SAID SOUND SIGNAL SEQUENCE TO SAID AUDIO OUTPUT MEANS”;

(in claim52) (1) “... SAID ACTUATION-CONTROL MEANS INCLUDES MEANS FOR SELECTIVELY SWITCHING ELECTRIC CURRENT TO SAID ACTUATOR IN RESPONSE TO RECEIVING SAID BINARY LOGIC SIGNALS...”, and (2) “... SAID ACTUATOR HAS ONLY TWO PHASES ...”;

(in claim53) “... MEANS FOR SEQUENCING ... BY ASSIGNING ONE OF SAID BINARY CODES TO EACH LETTER IN SAID TEXTUAL CONTENT, ACCORDING TO .. THE REACTION TIME OF SAID ACTUATOR, AND THE ARRANGEMENT OF VOWEL LETTERS IN SAID TEXTUAL CONTENT ... ”

(1c-ii) Grouping of Claims

As set forth in the claim languages of Subsection (1c-i) above, the two groups of Claims, i.e., (1) Claims 44-50, as amended, and (2) Claims 51-60, are separately patentable. The first group, i.e., Claims 44-50, disclose an animated talking toy adapted to be controlled by a multimedia computer with majority of the claim languages focusing on the physical structure of the toy figure and the digital control signals transmitted to the toy figure. Claim elements such as “ACTUATION-CONTROL MEANS OPERABLE BY ... DIGITAL .. SIGNALS” and “ACTUATOR FOR MOVING ... IN RESPONSE TO ... RECEIVING THE DIGITAL ... SIGNALS” in Claims 44 are not taught nor suggested by TONG and GASPER ET AL. The second group, i.e., Claims 51-60, are drawn to the combination of a multimedia computer and a toy figure, with majority of the claim languages disclosing the methods of using the computer to synchronize the animation of the toy figure with its audio sound. Therefore, the first group of Claims 44-50 include boarder claim languages in general then the second group with regard to the operation of the computer synchronization process disclosed as claim limitations. Claim elements such as “ACTUATION MEANS ... FEASIBLE FOR DIGITAL CONTROL”, “ACTUATION-CONTROL MEANS OPERABLE BY ... DIGITAL ... SIGNALS”, and “MEANS FOR CAUSING SYNCHRONOUS TRANSMISSION” in Claim 51 are not taught nor suggested by TONG or GASPER ET AL.

(1d) Conclusion: For the foregoing reasons in this section, Applicant believes that the Rejections Under 35 U.S.C. § 103(a) fails to comply with the “claim limitations” requirement of MPEP §2143.03 described above, and respectfully requests that Board withdraw the Rejections. (see also the attached Declarations)

(B2) New and Different Functions and Advantages

(2a) According to MPEP § 2141, with respect to standard of patentability to be applied in obviousness rejections, “The Supreme Court reaffirmed and relied upon the Graham three pronged test in its

consideration and determination of obviousness in the fact situations presented in both the Sakraida v. Ag Pro, Inc., 425 U.S. 273, 189 USPQ 449, reh'g denied, 426 U.S. 955 (1976) and Anderson's-Black Rock, Inc. v. Pavement Salvage Co., 396 U.S. 57, 163 USPQ 673 (1969) decisions. In each case, the Court went on to discuss whether the claimed combinations produced a 'new or different function' and a 'synergistic result,' but clearly decided whether the claimed inventions were nonobviousness on the basis of the three-way test in Graham. Nowhere in its decisions in those cases does the Court state that the 'new or different function' and 'synergistic result' tests supersede a finding of nonobvious or obviousness under the Graham test."

New and Different Functions and Superior Properties of the claimed invention have been described extensively in Applicant's previous Responses and communications, as repeated herein as follows (see also the attached Declarations):

(2b) Animated Toy Figure Being Controlled by Digital Signals

- (b.1a) The present invention discloses an animated talking toy figure that is, as set forth in Claim 35, with "IMPROVEMENT THEREIN INCLUDING ACTUATION MEANS ... OPERABLE BY AN EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL ...", in Claim 37, "... RESPONSIVE TO RECEIVING AN EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SEQUENCE AND AN EXTERNAL SOUND SIGNAL SEQUENCE ...", in Claim 44, "... RESPONSIVE TO RECEIVING A SEQUENCE OF SOUND SIGNALS REPRESENTING A SELECTED AUDIO SPEECH AND A SEQUENCE OF DIGITAL ANIMATION-CONTROL SIGNALS ...", and in Claim 51, "... OPERABLE BY AN EXTERNAL BINARY DIGITAL ANIMATION-CONTROL SIGNAL FOR CONTROLLING THE ANIMATION THEREOF AND BY AN EXTERNAL SOUND SIGNAL FOR PROVIDING AND CONTROLLING THE SOUND THEREOF"
- (b.1b) It is understood that the animated talking toy figure of the claimed invention is adapted to receives two separate signal sequences, i.e., "A SEQUENCE OF SOUND SIGNALS" for providing audio output of the toy figure, and "A SEQUENCE OF DIGITAL ANIMATION-CONTROL SIGNALS" for controlling the animation thereof. As it is well known, a digital signal sequence has two finite electric voltage levels, as standardized by the digital electronics industry, for representing the binary codes "1" and "0".
- (b.2) In contrast thereto, TONG discloses the combination of a doll and a multimedia computer wherein the doll receives the same analog sound signal from the computer for controlling all the drive motors within the doll as well as for supporting the doll's audio output (2:44-55, FIGS.1-3, 6). As it is well known, an analog sound signal sequence has a continuous and alternating voltage level. TONG fails to disclose an animated toy figure of the type feasible for digital control.
- (b.3) Conclusion: In comparison with the animated talking doll of TONG, the claimed invention presents new and different functions with respect to the operation principle and control signals needed for controlling the toy figure's animation. (see also the attached Declarations)

(2c) Operation Principle of Actuation-Control

- (c.1) As set forth in Claims 36, 39, 47, and 52, the actuation-control system of the claimed toy figure "INCLUDES MEANS FOR SELECTIVELY SWITCHING ELECTRIC CURRENT TO SAID WIRING COIL IN RESPONSE TO RECEIVING SAID EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL SO AS TO MOVE..... THE MOVABLE PORTION", and in Claims 42, "WHEREIN SAID MEANS FOR SWITCHING ELECTRIC CURRENT CONNECTS ELECTRIC CURRENT ... IN RESPONSE TO ... RECEIVING THE FIRST DRIVE-CONTROL SIGNAL ... AND DISCONNECTS ELECTRIC CURRENT ... IN RESPONSE TO... RECEIVING THE SECOND DRIVE-CONTROL SIGNAL", i.e., the actuation-control system of the claimed toy figure receives and are operated by a digital signal sequence that is separate from any sound signal.
- (c.2) In contrast thereto, TONG utilizes an amplifier to "increases the level of the audio signal" and a rectifier to "converts the amplified signal to a D.C. voltage which is applied to the drive motors" (2:51-55). It is understood that the actuation system of TONG employs amplified and rectified analog sound signals received from the computer for actuating the drive motors of each doll, instead of "SELECTIVELY SWITCHING ELECTRIC CURRENT" to the actuator in response to receiving digital control signals as so disclosed in the claimed invention. In addition, all the drive motors within each doll of TONG are actuated by the same amplified and rectified analog sound signal sequence which has alternate and continuous amplitudes proportional to that of the analog sound signals received from the computer. Such an actuation arrangement of TONG requires that the doll's drive motor be actuated *only under the presence of sound signals*. TONG does not teach or suggest employing a digital-controlled actuation system for selectively switching electric power to the actuator in response to receiving digital control signals, and fails to provide a digital-controlled actuation system that can be actuated without presence of any analog sound signals.
- (c.3) Conclusion: In comparison with the animated talking doll of TONG, the claimed invention presents new and different functions with respect to digital operation of the electronic actuation-control system of the claimed toy figure. (see also the attached Declarations)

(2d) Toy Figure's Animation Being Independent of Audio Sound

- In many circumstances, it is desirable that control of the toy figure's animation be independent of its audio sound, such as in case of musical sound, or based on whether the current word or phrase of the toy figure's audio speech belongs to a specific vocabulary groups, instead of being always actuated under the presence of any type of sound.
- (d.1) As described above, the digital animation-control signals of the claimed invention are separated from the sound signals of the toy figure. Such an arrangement allows that the toy figure's animation be controlled according "TEXTUAL CONTENT AND SPEED OF SAID [the] SELECTED AUDIO SPEECH" or according to presence or lack of textual content, or based on whether the current word or phrase of the toy figure's audio speech belongs to a specific vocabulary groups, by

providing appropriate digital animation-control signals [Reference to Specification: 11:24-26, 12:26-28, 13:17-30]. In the case of musical sound without textual content, the toy figure of the claimed invention can simply be controlled to have no animation. Furthermore, animation of the claimed toy figure's body part can be actuated without presence of any sound at all.

- (d.2) In contrast thereto, TONG employs the same analog sound signal for controlling the doll's animation actuation as well as for supporting its audio output (2:44-55, 3:3-6, 3:43-45, FIGS.1-3, 6). Such an arrangement of TONG requires that movable portion of the doll be always actuated under the presence of any sound signal regardless of the type or content of the sound.
- (d.3) Conclusion: the claimed invention presents such new and different functions and advantages, as compared with the animated talking doll of TONG, that the animation of the toy figure, according to the claimed invention, can be controlled according to type or content of its audio sound or to be independent of its sound. (Reference to Specification: 12:9-15, 13:17-14:14)

(2e) Operation Principle of Actuator

- (e.1) As set forth in Claims 35, 38 and 52, the claimed toy figure employs "ACTUATOR HAVING ONLY TWO PHASES FOR MOVING SAID MOVABLE PORTION IN RESPONSE TO ... DIGITAL ANIMATION-CONTROL SIGNAL"
- (e.2) In contrast thereto, TONG employs conventional *rotary* D.C. motors for actuating the movable portions of the doll. TONG does not teach or suggest employing an actuation device of the type having two (2) operation phases concurrent with the digital binary codes "1" and "0", and fails to disclose an animated talking toy of the type having binary actuation arrangement feasible for digital operation and control.
- (e.3) Conclusion: In comparison with the animated talking doll disclosed in TONG, the claimed invention presents new and different functions with respect to the operation principle of the actuation device employed. (see also the attached Declarations)

(2f) Computer Operation (compared with TONG)

- (f.1) As set forth in Claim 51, the basic functionality of the computer employed in the claimed invention is "GENERATING A SOUND SIGNAL SEQUENCE, REPRESENTING A PRESELECTED AUDIO SPEECH, AND A SEQUENCE OF BINARY DIGITAL ANIMATION-CONTROL SIGNALS FOR TRANSMISSION TO SAID TOY".
- (f.2) In contrast thereto, TONG utilizes a computer only to send an analog sound signal to the doll (2:44-45, 3:3-6, 3:43-45, FIGS.1-3, 6). TONG does not teach or suggest using the computer to generate any digital synchronization-control signals for transmission to the doll as so disclosed in the claimed invention, nor does TONG utilize the computer to determine detailed text content of the toy's audio speech for creating separate digital synchronization-control signals. TONG discloses an animated talking doll that is essentially the same as other prior art interactive talking

dolls of the type utilizing an external audio-video device, such as a TV, a radio, or a VCR, as means for providing analog sound signals for the toy, except that TONG utilizes a different analog sound source, i.e., the computer, and provides a "signal splitter" means for splitting the computer's sound signals for transmitting to two different speakers.

- (f.3) Conclusion: In comparison with TONG, the claimed invention presents new and different functions with respect to the operation principle of the computer employed. (see also the attached Declarations)
- (2g) Different Synchronization Principle (Compared with GASPER ET AL)
- (g.1) The basic computer synchronization principle of the claimed invention is, as set forth in Claims 51-52, to create "ANIMATION-CONTROL SIGNAL SEQUENCE" comprising "A SEQUENCE OF A FIRST AND A SECOND BINARY LOGIC SIGNALS". It is understood that the animation-control signals of the claimed invention are provided for controlling only two (2) positions, i.e., "open" and "close", of a physical toy figure's movable body part, and that the two logic states of the animation-control signal sequence are directly associated with the two positions of the toy figure's movable body part. The claimed invention also provides method for adjusting the frequency of actuation control according to reaction-response time of the toy figure's movable body part and the two-phase actuator attached thereto, as so set forth in Claims 48 and 53 as "ACCORDING TO THE SPEED OF SAID PRESELECTED AUDIO SPEECH, THE REACTION TIME OF SAID ACTUATOR, AND THE ARRANGEMENT OF VOWEL LETTERS ..."
- (g.2) In contrast thereto, the basic concept of GASPER ET AL is to synchronizes the audio sound with an on-screen image (or the "synactor")'s at least eight (8) lip positions and sixteen (16) total facial expressions (9:49-51, 9:68-10:13, 11:63-68, 14:48-56, FIGS. 4, 5c, 6a-6c), instead of two mouth positions of the claimed toy figure.
- (g.3) Employment of relatively large number of lip positions and facial expressions in GASPER ET AL results in a rather complex synchronization process: The animated on-screen image, or the "synactor", of GASPER ET AL is defined by a descriptive authoring programming language named "RAVEL" which contains "coded instructions for dynamically accessing and combining the video and audio characteristics .." (2:61-62, 3:13-20, 4:55-56, 7:9-11), and by a "synactor model table" for representing a number of internal data structures compiled from the RAVEL source program (16:29-39, FIG.8); Animation and synchronization control of the "synactor" is provided by another scripting language and a real-time random-access interface driver, both named as "RAVE" (2:60-61, 4:53-58, 4:67-5:3, 7:6-9, 8:38-41); Detailed synchronization process can be done by a user at the "speech sync lab", which is one of the display screens of a general purpose user interface system named "hyperanimator" (3:26-29, 3:54-56, 4:32-45, 6:68-7:11, 8:14-17, 12:16-22, 18:48-56, FIG.5g, FIGS.10a-10d); During the synchronization process at the "speech sync lab", a text string entered by the user for representing a sound is converted to a "phonetic text string"

which is then sent, along with the location of sound resource and file, to the "RAVE driver"; The "RAVE driver" use this information received to create a "RAVE RECITE command", which can be used for synchronization control and contains the needed synchronization information such as "phonetic/timing value string". The quality of synchronization and animation control is dependent on the timing value attached to each one of the phonetic element (12:31-64, FIG.5g, 19:38-40).

- (g.4) In contrast with the complex synchronization process of GASPER ET AL, the animated toy figure of the claimed invention is defined, in the computer system, by the simple binary codes "1" and "0", instead of using the "RAVEL" authoring language and the "synactor model table" of GASPER ET AL; the control-code / timing pair of the claimed invention is created by selecting the logic code "1" according to reaction-response time of the solenoid device used and speed of the audio speech, instead of using any complex programming system such as the "RAVE driver" and the "RAVE" scripting language of GASPER ET AL. Again, the cause of these differences is relatively large number of lip positions and facial expressions employed in GASPER ET AL.
- (g.5) Furthermore, It is well know that the reaction / response behaviors of an on-screen image present little temporal restriction to the operation frequency of image-animation control, and there is no need to consider the reaction-response time, or the "weight", of the image in designing any type of on-screen computer animation. However, in order to use a computer to provide appropriate digital control of any type of physical device with high frequency, the it is essencial that the reaction-response time of the physical device be considered.
- (g.6) Conclusion: In comparison with the disclosure of GASPER ET AL, the claimed invention presents different functions with respect to the synchronization method and principle of the computer system employed. (see also the attached Declarations)

(2h) Independent Control of Toy Figure's Second Movable Body Part

- (h.1) The digital actuation system of the claimed invention facilitates separate control of the toy figure's second movable body part with actuation thereof being substantially independent of the toy's first body part, as so set forth in Claims 43 and 46 as: " ..WHEREIN SAID ACTUATION MEANS INCLUDES A FIRST AND A SECOND ACTUATORS FOR CAUSING INDEPENDENT MOVEMENTS OF SAID TWO MOVABLE PORTIONS OF THE TOY ..." For example, as described above, actuation of the toy figure's second movable body part, according to the claimed intention, can be controlled based on whether the current word or phrase of the toy figure's audio speech belongs to a specific vocabulary groups.
- (h.2) In contrast thereto, since TONG utilizes the same sound signal for supporting the sound speaker as well as for controlling all the motors within the doll's body (2:44-50, FIGS.1-3, 6), it requires that, in case of the doll having a second movable body part, the movement of the second body part be substantially identical or concurrent with that of the first movable part, which is, apparently, not realistic. TONG fails to provide an animated talking doll of the type that can be adapted to include

realistic movement of an additional movable boy part that is substantially independent of the first movable body part of the doll.

- (h.3) Conclusion: In comparison with the animated talking doll disclosed in TONG, the claimed invention presents new and different functions and advantages with respect to independent control of the toy figure's second movable body part. (see also the attached Declarations)
- (B3) Non-analogous Art - Compared with TONG
- (3a) According to MPEP§ 2141.01(a), “ ‘In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.’ In re Attacher, 977 F.d. 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also In re Deminski, 796 F.d. 436, 230 USPQ 313 (Fed. Cir. 1986); In re Clay, 966 F.d. 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992)”, and “ ... the court has found “the similarities and differences in structure and function of the inventions to carry far greater weight.” In re Ellis, 476 F.d. 1370, 1372, 177 USPQ 526, 527 (CCPA 1973)”
- (3b) The “particular problem” with which the claimed invention is concerned is to provide an animated toy figure with actuation thereof being controlled by “EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL” received from a computer, so as to synchronize the movement of the toy's body part with its audio speech, and to avoid using conventional rotary motor for actuation of the toy figure's body part so as to reduce mechanical complexity.
- (3c) In contrast thereto, the problem with which TONG is concerned is to provide a combination of a computer and an animated sounding doll and a sound-signal “splitter” such that, the sound of the doll is separated from the sound of the computer speaker, and that the analog sound signals from the computer can be used for controlling the doll's animation as well as for providing the doll's sound, as so stated in TONG as “The audio signals for the sounds to be vocalized by the bear [doll] are directed to the left audio output channel, and the signals for all other sounds are directed to the right output channel [of the computer]”, and “Signals for driving the speaker and the drive motors are obtained from the left audio output channel” (2:44-45, 3:3-6, 3:51-4:16, FIGS 4-5).
- (3d) TONG is not concerned with nor teaches providing any solution or discussion of using digital signals to control a toy figure's movable body part and avoiding using conventional rotary motor to reduce mechanical complexity. Therefore, TONG is not in the same field of endeavor as the claimed subject matter and is not pertinent to the particular problem with which Applicant is concerned. (see also the attached Declarations)
- (3e) Furthermore, Applicant has provided herein extensive discussions of functional and structural differences between the claimed invention and TONG, which also renders TONG non-analogous with and not in the same field of endeavor as the claimed subject matter.

(B4) Non-analogous Art - Compared with GASPER ET AL

- (4a) Again, according to MPEP§ 2141.01(a), “ ‘In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.’ In re Attacher, 977 F.d. 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).”
- (4b) A “particular problem” with which the claimed invention is concerned is how to relate the binary code “1” and the “open” position or state of a physical toy figure’s movable body part with vowels in the text string of the toy figure’s audio speech so as to synchronize the audio speech with the toy figure’s animation. Since the articulated body part of the claimed toy figure has only one animated state (i.e., “open”) in addition to its default position (i.e., “close”), the binary code “1” and “0” are used to represent this two positions in the computer system of the claimed invention. Because the toy figure’s movable body part and the actuation device attached thereto has finite reaction-response time, the frequency of the control signals created by the computer can not be very high. The synchronization process of the claimed invention requires minimal computing resource.
- (4c) In contrast thereto, the “particular problem” with which GASPER ET AL is concerned is how to use existing computing resource to synchronize an audio sound with relatively large number of lip positions and facial expressions of an animated on-screen image. The animated image does not have reaction-response time limitation to the operation control, and requires at least seven (7) lip positions and fifteen (15) facial expressions in addition to its “REST” state, depending on available computing resources and precision requirement. It is understood that the computing systems of GASPER ET AL are provided for applications such creating computer games, motion pictures, etc. (2:55-60), rather than for controlling any type of physical devices.
- (4d) GASPER ET AL is not concerned with nor teaches providing any solution or discussion of creating digital signals for controlling any type of physical device, such as a solenoid, that has two phases and finite reaction-response time. Therefore, GASPER ET AL is not in the same field of endeavor as the claimed subject matter and is not pertinent to the particular problem with which Applicant is concerned. (see also the attached Declarations)

(B5) Claimed Invention As a Whole Being Non-obvious

- (5a) According to MPEP§ 2141.02, “In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.d. 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.d. 782, 218 USPQ 698 (Fed. Cir. 1983)”, and “ ‘In determining whether the invention as a whole would have been obvious under 35 U.S.C. 103, we must first delineate the invention as a whole. In delineating the invention as a whole, we look not only to the subject matter which is literally recited in the claim in question... but also to those

properties of the subject matter which are inherent in the subject matter and are disclosed in the specification. ... it is this invention as a whole, and not some part of it, which must be obvious under 35 USC 103.' In re Antonie, 559 F.2d 618, 620, 195 USPQ 6,8 (CCPA 1977) ... See also In re Papesch, 315 F.2d 381, 391, 137 USPQ 43, 51 (CCPA 1963) "

- (5b) However, as described above, the key argument in support of the Rejections is directed to a specific device, i.e., the solenoid actuator, employed in the claimed invention, instead of considering the claimed invention "as a whole", as so stated in the Office Action as: *"it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect two-phase solenoids as the actuators in the invention of TONG ..."*
- (5c) Therefore, the Rejections fail to comply with the "Claimed Invention As a Whole" requirement of MPEP§ 2141.02. The new and different functions and advantages and superior properties of the claimed invention as described herein and in the specification render the claimed invention non-obvious.

(B6) Alleged Modification Changing Principle of Operation

- (6a) According to MPEP§ 2143.01, "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.d. 810, 123 USPQ 349 (CCPA 1959)"
- (6b) As described above, the alleged modification is *"to connect two-phase solenoids as the actuators in the invention of TONG"*.
- (6c) The operation principle of the claimed invention is to use two separate signal sequences to control the sound and animation of a toy figure, i.e., a sound signal sequence to drive the speaker and a separate digital signal sequence to control the toy's animation, and to avoid using any rotary actuation device, while the principle of TONG is to use the same sound signals to drive the doll's speaker as well as for actuating the rotary motors therein for moving the doll's mouth and eyes, with the understanding that the "amplifier 34 and rectifier 36" employed by TONG [2:52-55, FIGS.1-3,6] are NOT conventional electronic devices for digital control of a solenoid.
- (6d) Therefore, the alleged modification would change the principle of operation of TONG, and the obviousness Rejections over TONG fail to comply with the "operation principle" requirement of MPEP§ 2143.01. (see also the attached Declarations)

(B7) Features of GASPER ET AL Can Not Be Combined with TONG

- (7a) As described above, the operation principle of GASPER ET AL is to synchronize an audio sound with at least eight (8) lip positions and sixteen (16) total facial expressions of an on-screen animated image. Apparently, such a synchronization method can not be used for controlling the rotation of the DC motor employed by TONG. Furthermore, the physical structure of TONG's

combination of a doll with a computer does not include basic electronic elements required to facilitate transmission of a separate digital control signal sequence between the doll and the computer in addition to the transmission of the sound-signals.

- (7b) Therefore, the features of GASPER ET AL can not be combined with TONG, the alleged combination would change the principle of operation of GASPER ET AL, and the obviousness Rejections over TONG in view of GASPER ET AL fail to comply with the "operation principle" requirement of MPEP§ 2143.01 described above. (see also attached Declarations)
- (B8) Alleged Modification not Functionally Feasible
- (8a) According to MPEP§ 706.02(j), "The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. 'To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.' Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See MPEP Section 2144 - Section 2144.09 for examples of reasoning supporting obviousness rejections."
- (8b) It is understood that not only is the teaching or suggestion of the alleged modification not found in TONG, but the electronic components needed to functionally facilitate the alleged modification, i.e., "[CONTROL] LOGIC INPUT MEANS" or "... MEANS FOR RECEIVING [SAID] DIGITAL ANIMATION-CONTROL SIGNALS" and "MEANS FOR SELECTIVELY SWITCHING ELECTRIC CURRENT TO SAID WIRING COIL [of the solenoid] IN RESPONSE TO RECEIVING SAID EXTERNAL DIGITAL ANIMATION-CONTROL SIGNAL", and the mechanical arrangement needed to facilitate the alleged modification, i.e., coupling of the toy figure's articulated body part with the solenoid, are also not taught or suggested in TONG, which renders the alleged modification functionally unfeasible.
- (8c) Therefore, the Rejections fail to comply with the requirement of "presenting a convincing line of reasoning" set forth in MPEP§ 706.02(j) as to why the functionally unfeasible modification alleged would have been obvious in light of the teachings of TONG. (see also the attached Declarations)
- (B.9) Lack of Success of Others
- (9a) According to Applicant's experience and observation, solenoid is not a commonly used device for actuating moving body part of a doll in the toy manufacture industry, and there is still no product in the market similar to the claimed invention, which was invented more than four (4) years ago, or similar to the alleged modification or combination.
- (9b) Therefore, there is no evidence for supporting reasonable expectation of success for the proposed modification or combination, which substantiates the conclusion that present invention is non-obvious.

VIII.5 CONCLUSION

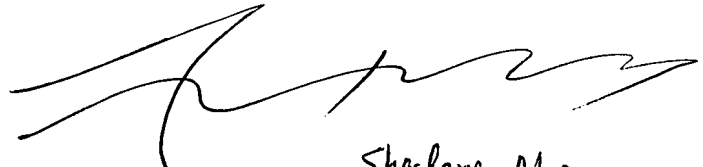
For the foregoing reasons, Applicant respectfully appeal, under 37C.F.R. §1.191, 1.192, from the Examiner's decision of rejecting Claims 35-60 to the Board of Patent Appeals and Interference.

Applicant's Amendment under 37 C.F.R. § 1.116 for presenting the Claims in better form for appeal and Declarations under 37C.F.R. §1.132 traversing the references have been submitted before this communication, and reconsideration of the application, as amended, is respectfully requested.

IX. MISCELLANEOUS -

(Request for Proper Advancement of the Proceeding)

Applicant respectfully points out that Applicant received the second Office Action dated 05/15/00 more than six and half (6.5) months after Applicant's Response filed 10/27/99, and respectfully requests proper advancement of the Application proceeding. Applicant also respectfully requests that, should further delay or withholding of the proceeding be deemed necessary, written notification of cause thereof be promptly sent to Applicant.


Shaolong Maa
08/25/00

IX. APPENDIX - COPY OF THE UPDATED* CLAIMS INVOLVED IN THE APPEAL

[*Note: the "after-final" amendment filed 06/06/00 has been entered]

What is claimed is:

5 35. In combination with a multimedia computer, an animated talking toy including a body portion having at least one movable portion and a loudspeaker situated within said body for reproducing selected audio sound in response to receiving an external sound signal transmitted from the multimedia computer, the improvement therein including actuation means situated within
10 said body and operable by an external digital animation-control signal transmitted from the multimedia computer, said actuation means including:

 an actuator for moving said movable portion; and

 actuation-control means for controlling the actuator;

 said actuator having only two phases for moving said movable portion in response to said actuation-control means receiving said external digital animation-control signal.

15 36. The improvement of claim 35, wherein said actuator comprises a solenoid means having a wiring coil and a magnetic plunger member disposed therein and attached to said movable portion, and wherein said actuation-control means includes means for selectively switching electric current to said wiring coil in response to receiving said external digital animation-control signal so as to
20 move the plunger member and hence the movable portion.

 37. An animated talking toy figure adapted to receive an external digital animation-control signal sequence and an external sound signal sequence representing a selected audio sound, said toy figure including:

25 a body having at least one movable portion;

 an audio output means situated within said body for reproducing the selected audio sound in response to the toy receiving the sound signal sequence; and

 actuation means situated within said body and operable by the external digital animation-control signal sequence for actuating said movable portion.

30 38. The animated talking toy figure as set forth in claim 37, wherein said actuation means includes actuation-control means operable by said external digital animation-control signal sequence and an actuator having only two phases for moving said movable portion in response to said actuation-control means receiving the external digital animation-control signal sequence.

39. The animated talking toy figure as set forth in claim 38, wherein said actuator comprises a solenoid means having a wiring coil and a magnetic plunger member disposed therein and attached to said movable portion of the toy, and wherein said actuation-control means includes means for selectively switching electric current to said wiring coil in response to the actuation-control means receiving said external digital animation-control signal sequence so as to actuate said plunger member and hence said movable portion.

40. The animated talking toy figure as set forth in claim 39, wherein said actuator further includes means for coupling said movable portion of the toy to said plunger member of the solenoid, wherein said external sound and digital animation-control signals are wireless signals, and wherein the toy body further includes conventional receiving devices for receiving said wireless signals.

41. The animated talking toy figure as set forth in claim 40, wherein said means for coupling includes, means for attaching said movable portion of the toy to said plunger member of the solenoid so as to apply torque to pivotally move the movable portion by the plunger member, and a return spring means attached to the movable portion for applying a biasing force to the movable portion in an opposite direction to the force applied by the plunger member.

42. The animated talking toy figure as set forth in claim 39, wherein said actuation-control means further includes, means for transferring said external digital animation-control signal sequence received to a subsequent digital signal sequence comprising a sequence of a first and a second logic signals for representing animated and default positions of said movable portion of the toy figure respectively, and logic input means for receiving said subsequent digital signal sequence, and wherein said means for switching electric current connects electric current of appropriate intensity to said wiring coil of the solenoid in response to said logic input means receiving the first logic signal so as to move said plunger member and hence said movable portion attached thereto and disconnects electric current from the wiring coil in response to the logic input means receiving the second logic signal so as to return the movable portion to its default position.

43. The animated talking toy figure as set forth in claim 37, wherein said body further includes a second movable portion, wherein said external digital animation-control signal sequence includes a second digital control signal sequence, and wherein said actuation means includes a first and a second actuators for causing independent movements of said two movable portions of the toy respectively in response to the actuation means receiving the respective first and the second external digital control signal sequences.

44. An animated talking toy adapted to be controlled by a multimedia computer and responsive to receiving a sequence of sound signals representing a selected audio speech and a sequence of digital animation-control signals transmitted from the computer, said animated talking toy comprising:

5 a toy figure having a body portion including at least one movable portion;
 an audio output means situated within said body for reproducing the selected audio
 speech in response to the toy receiving said sound signal sequence; and
 actuation means situated within said body, including an actuation-control means
10 operable by said digital animation-control signals and an actuator for moving said movable
 portion in response to the actuation-control means receiving the digital animation-control
 signals;
 said digital animation-control signal sequence being associated with said selected
 audio speech in a predetermined manner and transmitted to the toy in synchronization with
15 the transmission of said sound signal sequence to the toy.

15 45. The animated talking toy as defined in Claim 44, wherein said at least one movable
 portion includes a mouth, and wherein said digital animation-control signal sequence represents
 movement of the mouth in synchronization with transmission of said sound signal sequence to
 simulate speaking.

20 46. The animated talking toy as defined in Claim 44, wherein said toy further includes a
 second movable portion, wherein said digital animation-control signal sequence includes a second
 digital control signal sequence, and wherein said actuation means further includes a second
 actuators for causing movement of said second movable portion in response to the actuation means
25 receiving the second digital control signal sequence, said movement of the second movable portion
 being independent of that of the first movable portion.

30 47. The animated talking toy as defined in Claim 44, wherein said actuator comprises a
 solenoid means having a wiring coil and a magnetic plunger member disposed therein and attached
 to said movable portion, and wherein said actuation-control means includes a logic input means for
 receiving said digital animation-control signals and means for selectively switching electric current
 to said wiring coil of the solenoid for causing movement of the plunger member and the movable
 portion in response to the logic input means receiving the animation-control signals.

5 48. The animated talking toy as defined in Claim 44, wherein said digital animation-control signal sequence comprises a sequence of a first and a second logic signals indicating a first and a second positions of said movable portion and representing a first and a second predefined binary digital values respectively, and wherein said predetermined manner comprises association of each letter, typographic symbol, and null space in the text of said audio speech with one of said binary digital values according to arrangement of vowel letters in said text and according to the speed and total time of each continuous portion of said audio speech.

10 49. The animated talking toy as defined in Claim 48, wherein said predetermined manner further comprises association of the timing period of each said logic signal of said animation-control signal sequence with average timing unit of the corresponding continuous portion of said preselected audio speech, said average timing unit being equal to the total time of said continuous portion divided by total number of letters, typographic symbols, and null spaces in the text of said continuous portion.

15 50. The animated talking toy of Claim 44 further including a microphone means situated within said body for converting an external audio sound received by the toy to an electrical signal for transmission to the computer.

20 51. In combination, an animated talking toy operable by an external binary digital animation-control signal for controlling the animation thereof and by an external sound signal for providing and controlling the sound thereof, a multimedia computing means for generating a sound signal sequence, representing a preselected audio speech, and a sequence of binary digital animation-control signals for transmission to said toy, and means for transmitting said sound signal sequence and said digital animation-control signal sequence from said multimedia computing means to said toy,

said toy comprising,

a toy figure with an appearance simulating that of a living being, including a body and a movable mouth,

30 an audio output means situated within said body for reproducing the preselected audio speech in response to the toy receiving the sound signal sequence, and

actuation means situated within said body and feasible for digital control, including an actuation-control means operable by said binary digital animation-control signals and an actuator for moving the movable mouth in response to the actuation-control means receiving the animation-control signals,

35 said multimedia computing means including,

means for generating the sound signal sequence for transmission to said audio

output means over said means for transmitting,

means for generating, based on textual content and speed of said selected audio speech, the animation-control signal sequence for transmission to said actuation means over said means for transmitting, and

means for causing synchronous transmission of said animation-control signal sequence to said actuation means and said sound signal sequence to said audio output means.

52. The combination of Claim 51, wherein said animation-control signal sequence comprises a sequence of a first and a second binary logic signals, wherein said actuation-control means includes means for selectively switching electric current to said actuator in response to receiving said binary logic signals, and wherein said actuator has only two phases for moving said movable mouth in a first direction in response to said actuation-control means receiving the first binary logic signal and in the other direction in response to said actuation-control means receiving the second binary logic signal.

53. The combination of Claim 51, wherein said animation-control signal sequence comprises a sequence of a first and a second binary logic signals representing a first and a second predefined binary codes respectively, wherein said means for generating animation-control signal sequence includes means for sequencing said binary logic signals by assigning one of said binary codes to each letter in said textual content, according to the speed of said preselected audio speech, the reaction time of said actuator, and the arrangement of vowel letters in said textual content, for defining logic level of each said binary logic signal and for indicating positions of said movable mouth, and by constructing the timing period for each said logic signal of the animation-control signal sequence according to the speed of said preselected audio speech.

54. The combination of Claim 51, wherein said multimedia computing means further includes means for storing text data representing the selected audio speech for being processed by the computing means, and wherein said means for generating sound signal sequence includes speech synthesizing means for synthesizing, based on said text data, the sound signal sequence.

55. The combination of Claim 54, wherein said multimedia computing means further includes means for storing a lookup dictionary comprising digital sound data representing a plurality of predefined spoken words in combination with predetermined synchronization-control codes, wherein said means for generating digital animation-control signal sequence includes means for selecting and sequencing, based on said text data, said synchronization-control codes in the lookup dictionary for constructing the digital animation-control signal sequence, and wherein said means for generating sound signal sequence includes means for selecting and sequencing, based on the text data, said digital sound data in the lookup dictionary for constructing the sound signal sequence.

56. The combination of Claim 51, wherein said toy figure further includes a microphone means situated within said body for converting an external audio sound received by the toy to an electrical signal for transmission to said multimedia computing means over said means for transmitting, and wherein said multimedia computing means further includes means for recording said external audio sound received by the toy and means for recognizing textual content of said external audio sound.

57. The combination of Claim 56, wherein said means for generating sound signal sequence further includes means for playing back said external audio sound in real time, and wherein said means for causing synchronous transmission includes means for synchronizing said playing back of the external audio sound with transmission of said animation-control signal sequence from said computing means to said toy.

58. The combination of Claim 51, wherein said multimedia computing means further includes a monitor and means for displaying image animation on said monitor in coordination with said movable mouth.

59. The combination of claim 51, wherein said means for transmitting comprises an elongated cable extending from said toy to said multimedia computing means.

60. The combination of claim 51, wherein said animated talking toy further includes,
a second body having a movable mouth,
a second audio output means situated within said second body for reproducing a second selected audio speech in response to receiving a second sound signal sequence transmitted from the computing means, and
a second actuation means situated within said second body for moving the movable mouth thereof,

and wherein said multimedia computing means includes,


means for generating the second sound signal sequence representing the second selected audio speech for transmission to said second audio output means over said means for transmitting,

means for generating, based on textual content and speed of said second selected audio speech, a second binary digital animation-control signal sequence for transmission to said second actuation means over said means for transmitting,

means for causing synchronous transmission of said second digital animation-control signal sequence to said second actuation means and said second sound signal sequence to said second audio output means, and

means for coordinating the sound and animation of the second toy body with that of the first toy body.

Respectfully submitted,

By: 
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